JVC

SERVICE MANUAL

COLOR TELEVISION

AV-27F577/R, AV-27F577/S, AV-32F577/R, AV-32F577/Y, AV-32F577/Z

BASIC CHASSIS
GJ6

I'Art™

DCR DOLBY DIGITAL

TABLE OF CONTENTS

1 PRECAUTION 1-3
2 SPECIFIC SERVICE INSTRUCTIONS 1-4
3 DISASSEMBLY 1-6
4 ADJUSTMENT 1-12
5 TROUBLESHOOTING 1-30

COPYRIGHT © 2006 Victor Company of Japan, Limited

No.YA387
2006/5

SPECIFICATION

Items		Contents	
		AV-27F577	AV-32F577
Dimensions (W × H × D)		75.8 cm × 59.3 cm × 50.0 cm (29-7/8" × 23-3/8" × 19-3/4")	87.7 cm × 69.9 cm × 56.5 cm (34-5/8" × 27-5/8" × 22-1/4")
Mass		43.0 kg (94.6 lbs)	64.0 kg (140.8 lbs)
TV RF System (Analog / Digital)	Analog Digital	CCIR (M) ATSC terrestrial / Digital cable	
Color System (Analog)		NTSC	
Stereo System (Analog)		BTSC (Multi Channel Sound)	
Teletext System (Analog)		Closed caption (T1-T4 / CC1-CC4)	
TV Receiving Channels and Frequency (Analog)	VHF Low VHF High UHF CATV	02ch - 06ch : 54MHz - 88MHz 07ch - 13ch : 174MHz - 216MHz 14ch - 69ch : 470MHz - 806MHz 54MHz - 804MHz Low Band : 02 - 06 High Band : 07 - 13 Mid Band : 14 - 22 Super Band : 23 - 36 Hyper Band : 37 - 64 Ultra Band : 65 - 94, 100 - 135 Sub Mid Band : 01, 96 - 99	
TV / CATV Total Channel		191 Channels	
Intermediate Frequency (Analog)	Video IF Sound IF	45.75 MHz 41.25 MHz (4.5MHz)	
Color Sub Carrier Frequency (Analog)		3.58 MHz	
Power Input		AC120 V, 60 Hz	
Power Consumption		140 W	160 W
Picture Tube (Visible size)		67.6 cm (27") Measured diagonally (H: 55.4 cm × V: 41.8 cm)	82.2 cm (32") Measured diagonally (H: 65.6 cm × V : 49.6 cm)
High Voltage		30.0 kV ±1.3 kV [at Zero beam current]	31.4 kV ±1.3 kV [at Zero beam current]
Speaker		5 cm × 12 cm (2" × 4-3/4"), Oval type × 2	
Audio Power Output		5 W + 5 W	
Antenna Terminal (VHF / UHF)		F-type connector, 75 Ω unbalanced	
Video / Audio input [Input-1/2/3]	Component Video [Input-2] S-video [Input-1] Video Audio	RCA pin jack × 3 Y : 1V(p-p), 75 Ω, negative sync Pb/Pr : 0.7 V(p-p), 75 Ω Mini DIN 4-pin connector × 1 Y : 1 V(p-p), 75 Ω, negative sync C : 0.286 V(p-p)(burst signal), 75 Ω 1 V(p-p), 75 Ω, negative sync, RCA pin jack × 2 500 mV(rms)(-4dBs), high impedance, RCA pin jack × 6	
Audio Output (Fix)		500 mV(rms)(-4dBs), low Impedance, (400 Hz when modulated 100 %), RCA pin jack × 2	
Digital Audio Optical Output		Digital SPDIF × 1	
Remote Control Unit		RM-C1290G (AA/R6/UM-3 battery × 2)	

Design & specifications are subject to change without notice.

SECTION 1
PRECAUTION

1.1 SAFETY PRECAUTIONS

(1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual**. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

(4) **Use isolation transformer when hot chassis.**
The chassis and any sub-chassis contained in some products are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some products when the HOT chassis is exposed.

(5) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED (NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.). If above note will not be kept, a fuse or any parts will be broken.

(6) If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See B1 POWER SUPPLY check).

(7) The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

(8) Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

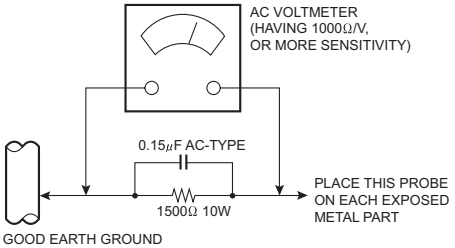
(9) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

(10) **Isolation Check (Safety for Electrical Shock Hazard)**
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

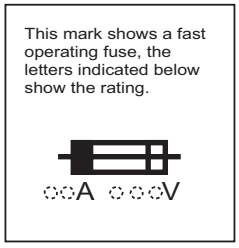
a) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1100V AC (r.m.s.) for a period of one second.
(. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.) This method of test requires a test equipment not generally found in the service trade.

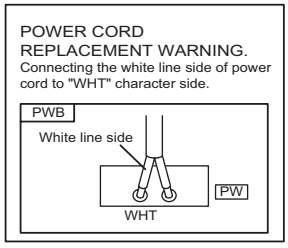
b) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000Ω per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



(11) **High voltage hold down circuit check.**
After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.See item **"How to check the high voltage hold down circuit"**.





SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

2.1 FEATURES

Built in ATSC (Advanced Television Systems Committee) TUNER

This TV can receive Digital broadcasting (ATSC), Digital cable and Analogue broadcasting.

SMART CAPTION

Smart caption will appear when you press the MUTING button, only on channels where the broadcast contains CLOSED CAPTION information.

SMART SOUND

Decreases high sound levels, giving a regulated sound level.

FLAT SQUARE CRT

It became legible from any position by CRT with few reflection and reflect lumps on the flat screen.

DIGITAL COMB FILTER

By the 3D digital comb filter, the refreshed image can be seen.

VIDEO STATUS

Expression of a favorite screen can be chosen by the VIDEO STATUS function.

COMPONENT INPUT

Since the component signal input terminal is equipped, it reappears direct without deteriorating the signal from DVD.

V-CHIP

Since the V-CHIP is built in, it can choose, view and listen to a healthy program.

MTS STEREO

The voice multiplex function of the MTS system is built in. (MTS = Multi channel Television Sound system)

RETURN PLUS

You program a specific channel to return to while scanning through the channels using the CH+ and CH - keys.

VIDEO INPUT LABEL

This function is used to label video input connections for the onscreen displays.

A.H.S.

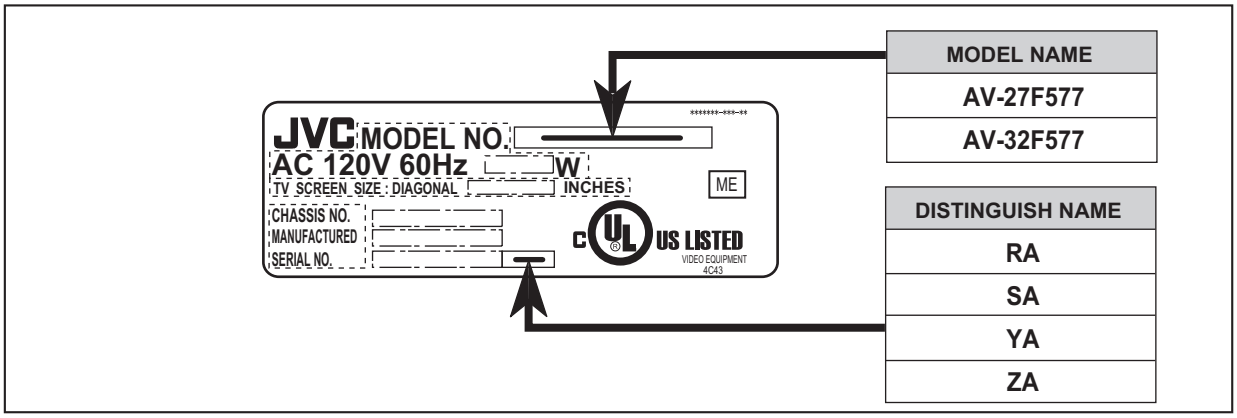
A.H.S. adds a more spacious surround sound. Music gives basic effect and movie for more effect.

2.2 MAIN DIFFERENCE LIST

Item	AV-27F577/R	AV-27F577/S	AV-32F577/R	AV-32F577/Y	AV-32F577/Z
PICTURE TUBE (ITC)	A68ELH021X201	A68QCP693X003	A80ALB20X09	A80AKS90X03	A80ERF182X17L
MAIN PWB	SGJ-1308A-M2	SGJ-1302A-M2	SGJ-1313A-M2	SGJ-1301A-M2	SGJ-1307A-M2
CRT SOCKET PWB	SGJ-3304A-M2	SGJ-3302A-M2	SGJ-3305A-M2	SGJ-3301A-M2	SGJ-3303A-M2
L/F PWB	SGJ-9302A-M2	←	SGJ-9301A-M2	←	←

2.3 HOW TO IDENTIFY MODELS

How to recognize from the appearance of the model concerned is written below. Please distinguish from several contents currently printed on the rating label



2.4 TECHNICAL INFORMATION

2.4.1 MAIN MI-COM (CPU) PIN FUNCTION

Pin No.	Pin name	I/O	Function	Pin No.	Pin name	I/O	Function
1	M_MUTE	O	Fixed output muting [Muting : H]	29	YC_GND	-	GND
2	KEY1	I	Front key scan voltage (CH+ / VOL+ / VOL-)	30	V1_IN	I	Not used
3	KEY2	I	Front key scan voltage (CH- / MENU/POWER)	31	ABCL	I	Current for automatic beam (brightness)/contrast limit
4	uP_DVss	-	GND	32	MONITOR_OUT	O	Not used
5	Reset	I	CPU reset [Reset: L]	33	BLACK_DET	-	Black level detection filter
6	8MHz_OUT	O	CPU system clock: 8MHz oscillation	34	SVM_OUT	O	Y signal for scan velocity scan modulation
7	8MHz_IN	I	CPU system clock: 8MHz oscillation	35	APL_FIL	-	Average picture level filter
8	TEST	-	GND	36	APC_FIL	-	Automatic phase control filter
9	uP_DVDD	I	5V	37	fsc_OUT	O	Not used
10	TU_RESET	O	Reset for digital tuner module [Reset : H]	38	YC_Vcc	I	5V (for video process circuit)
11	uP_VVSS	-	GND	39	R_OUT	O	R signal for CRT output
12	TV_HGND	-	GND	40	G_OUT	O	G signal for CRT output
13	FBP_SCP	I	Flyback pulse (H. pulse)	41	B_OUT	O	B signal for CRT output
14	HOUT	O	H. drive (oscillation)	42	RGB_Vcc	I	9V (for RGB process circuit)
15	H_Vcc	I	9V (for H. oscillation start)	43	IK_IN	I	Not used
16	HAFC_1	-	H. AFC filter	44	TV_DGND	-	GND
17	Vsaw	-	V. saw filter	45	uP_AGND	-	GND
18	VOUT	O	V. drive	46	uP_AVdd	-	5V
19	EW_OUT	O	Parabola waveform (for sidepin correection)	47	MAIN_POWER	O	Power on/off switching control [Powen on: L]
20	X-RAY	I	Not used: X-ray detection (for protection) [Detection : H]	48	DTVM_REQ	I	Read request from DTV micom [Request : H]
21	Ys	I	Not used	49	SDA1	I/O	Data for Inter IC control bus (for DTV micom)
22	Cb_IN	I	Cb (external) signal	50	SCL1	O	Clock for Inter IC control bus (for DTV micom)
23	Y_IN	I	Y (external) signal	51	SDA0	I/O	Data for Inter IC control bus (for main memory)
24	Cr_IN	I	Cr (external) signal	52	A_MUTING	O	Audio output muting [Muting : H]
25	TV_DVcc	I	3.3V	53	SCL0	O	Clock for Inter IC control bus (for main memory)
26	V3IN/CIN	I	Not used	54	AC_IN	I	AC 50/60Hz input for timer clock
27	EHT_IN	I	HV change control	55	REMOCON	I	Remote control sensor input [No input : H]
28	V2_IN/Y_IN	I	Not used	56	LED	O	POWER / ON TIMER LED Indication [lighting : L]

SECTION 3
DISASSEMBLY

3.1 DISASSEMBLY PROCEDURE

CAUTION AT DISASSEMBLY:

- Be sure to perform the SYSTEM SETTEING, at the end of the procedure.
- Make sure that the power cord is disconnected from the outlet.
- Pay special attention not to break or damage the parts.
- When removing each board, remove the connectors as required. Taking notes of the connecting points (connector numbers) makes service procedure manageable.
- Make sure that there is no bent or stain on the connectors before inserting, and firmly insert the connectors.

3.1.1 REMOVING THE REAR COVER

(1) Disconnect the power plug.
(2) Remove the 12 screws **[A]**.
(3) Withdraw the REAR COVER backward.

3.1.2 REMOVING THE AV TERMINAL BOARD

- Remove the REAR COVER.
  (1) Remove the 4 screws **[B]**.
  (2) Withdraw the AV TERMINAL BOARD toward you.

3.1.3 REMOVING THE CHASSIS

- Remove the REAR COVER.
- Remove the AV TERMINAL BOARD.
  (1) Slightly raise the both sides of CHASSIS by hand.
  (2) Remove the 2 claws under the both side of the CHASSIS from the front cabinet.
  (3) Withdraw the CHASSIS backward.
  (If necessary, remove the wire clamp, connectors etc.)

3.1.4 REMOVING THE SPEAKER [AV-27F577]

- Remove the REAR COVER.
  (1) Remove the 4 screws **[C]**.
  (2) Remove the SPEAKER.
  (3) Follow the same steps when removing the other hand SPEAKER.

3.1.5 REMOVING THE SPEAKER [AV-32F577]

- Remove the REAR COVER.
  (1) Remove the 2 screws **[D]**.
  (2) Remove the SPEAKER with SPEAKER HOLDER.
  (3) Remove the 2 screws **[E]**.
  (4) Remove the SPEAKER from the SPEAKER HOLDER.
  (5) Follow the same steps when removing the other hand SPEAKER.

NOTE :

When remove the 2 screws **[D]** of the SPEAKER, remove the lower side screw first, and then remove the upper one.

3.1.6 REMOVING THE LED & POWER SW PWB

- Remove the REAR COVER.
- Remove the CHASSIS.
  (1) Remove the 2 screws **[F]**.
  (2) Withdraw the LED & POWER SW PWB toward you.

*If necessary, remove the wire clamp, connector etc.

3.1.7 REMOVING THE FRONT CONTROL PWB

- Remove the REAR COVER.
- Remove the CHASSIS.
  (1) Remove the 2 screws **[G]**.
  (2) Withdraw the FRONT CONTROL PWB toward you.

*If necessary, remove the wire clamp, connector etc.

3.1.8 REMOVING THE USB PWB

- Remove the REAR COVER.
- Remove the AV TERMINAL BOARD.
  (1) Remove the 2 screws **[H]**.
  (2) Withdraw the USB PWB toward you.

*If necessary, remove the wire clamp, connector etc.

3.1.9 CHECKING THE CHASSIS

To check the PW Board from back side.
(1) Pull out the CHASSIS (refer to REMOVING THE CHASSIS).
(2) Erect the CHASSIS vertically with the HVT side facing up so that you can easily check the back side of the PW board.

CAUTION :

- When erecting the CHASSIS, be careful so that there will be no contacting with other PW Board.
- Before turning on power, make sure that the wire connector is properly connected.
- **When conducting a check with power supplied, be sure to confirm that the CRT EARTH WIRE (BRAIDED ASS'Y) is connected to the CRT SOCKET PWB.**

3.1.10 WIRE CLAMPING AND CABLE TYING

(1) Be sure to clamp the wire.
(2) Never remove the cable tie used for tying the wires together. Should it be inadvertently removed, be sure to tie the wires with a new cable tie.

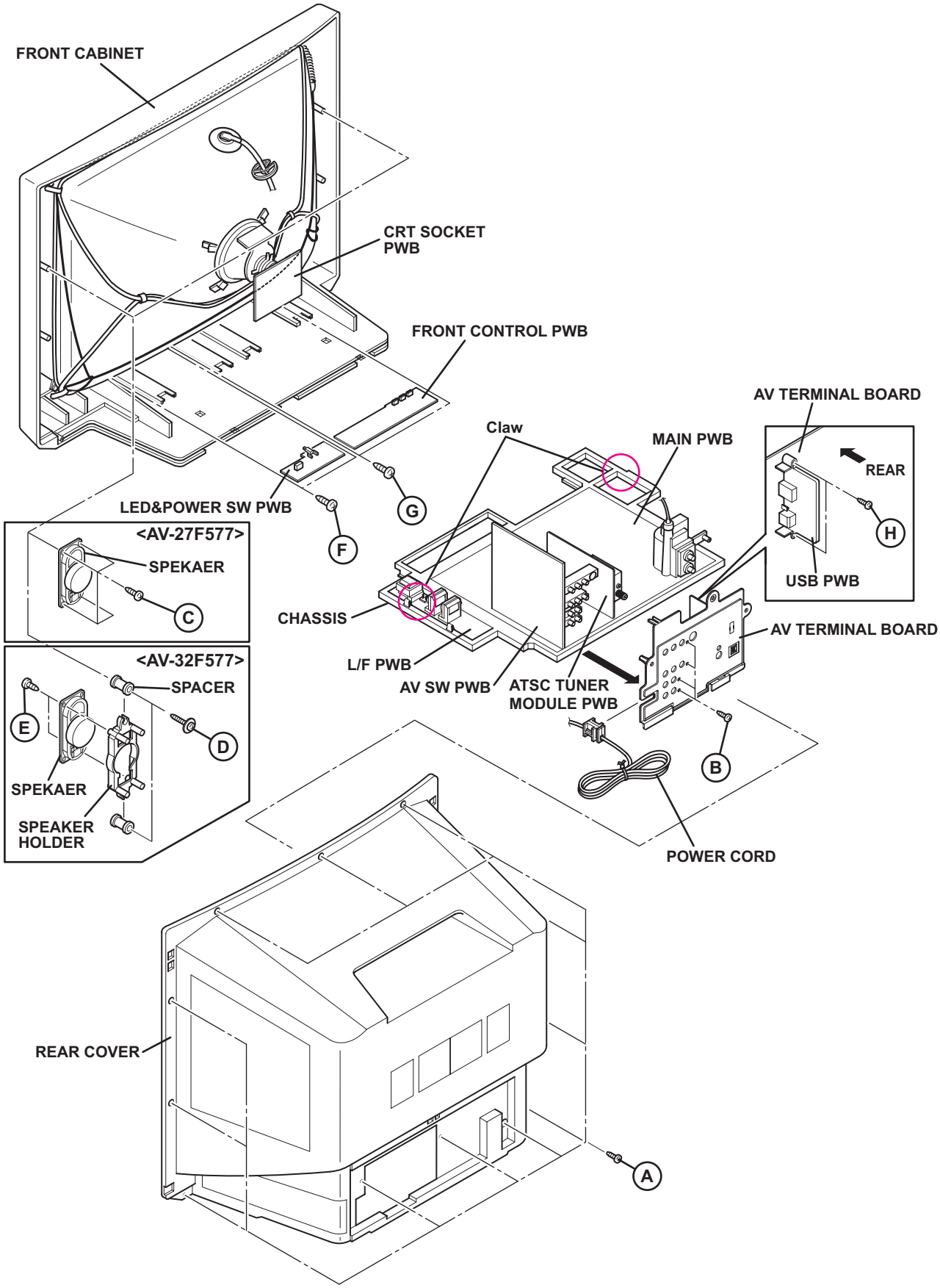

FRONT CABINET
CRT SOCKET PWB
FRONT CONTROL PWB
AV TERMINAL BOARD
Claw
MAIN PWB
REAR
LED&POWER SW PWB
G
F
H
USB PWB
<AV-27F577>
SPEKAER
C
CHASSIS
AV TERMINAL BOARD
<AV-32F577>
SPACER
E
D
L/F PWB
AV SW PWB
ATSC TUNER MODULE PWB
B
SPEKAER
SPEAKER HOLDER
POWER CORD
REAR COVER
A

Fig.1

3.1.11 REMOVING THE CRT

NOTE:

- Replacement of the CRT should be performed by 2 or more persons.
- After removing the REAR COVER, CHASSIS etc.,

(1) Putting the CRT change table on soft cloth, the CRT change table should also be covered with such soft cloth (shown in Fig. 2).

(2) While keeping the surface of CRT down, mount the TV set on the CRT change table balanced will as shown in Fig. 2.

(3) Remove 4 screws marked by arrows with a box type screw-driver as shown in Fig. 3.

NOTE:

Since the cabinet will drop when screws have been removed, be sure to support the cabinet with hands.

(4) After 4 screws have been removed, put the cabinet slowly on cloth (At this time, be carefully so as not to damage the front
surface of the cabinet) shown in Fig. 4.

NOTE:

- The CRT should be assembled according to the opposite sequence of its dismounting steps.
- The CRT change table should preferably be smaller that the CRT surface, and its height be about 35cm.

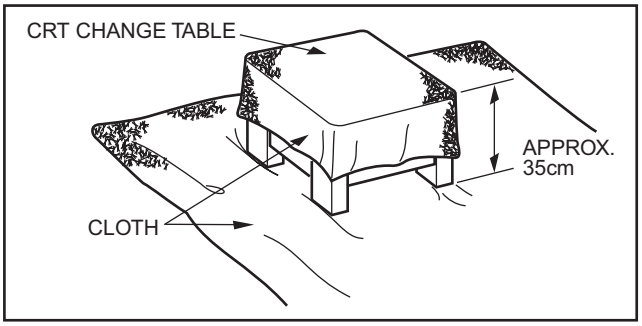


Fig.2

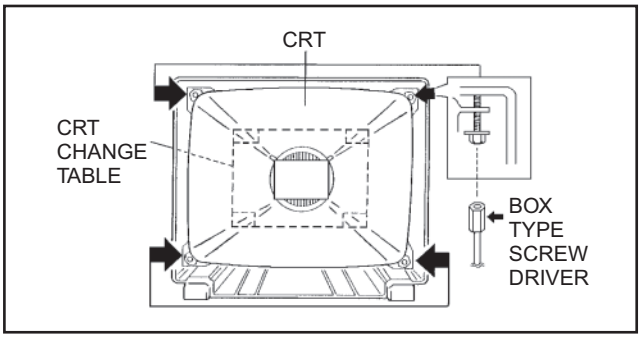


Fig.3

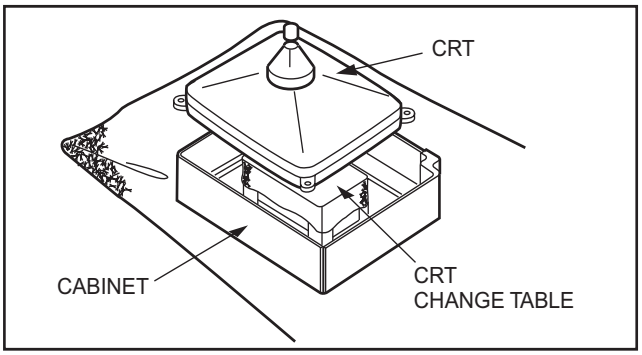


Fig.4

COATING OF SILICON GREASE FOR ELECTRICAL INSULATION ON THE CRT ANODE CAP SECTION.

Subsequent to replacement of the CRT and HV transformer or repair of the anode cap, etc. by dismounting them, be sure to coat silicon grease for electrical insulation as shown in Fig.5.Wipe around the anode button with clean and dry cloth. (Fig.5)Coat silicon grease on the section around the anode button. At this time, take care so that any silicon greases dose not sticks to the anode button. (Fig.6)

Silicon grease product No. KS - 650N

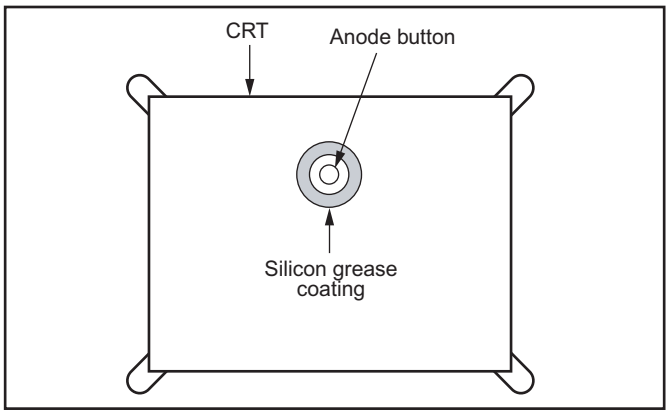


Fig.5

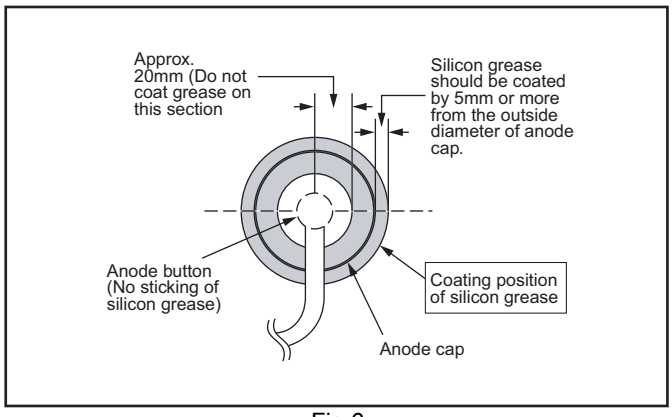


Fig.6

3.2 MEMORY IC REPLACEMENT

- This model uses the memory IC.
- This memory IC stores data for proper operation of the video and drive circuits.
- When replacing, be sure to use an IC containing this (initial value) data.

3.2.1 MEMORY IC TABLE

Simbol	Number of pins	Mounting PWB	Main content of data
IC702	8-pin	MAIN PWB	Setting value of Initial setting data is memorized.

3.2.2 MEMORY IC REPLACEMENT PROCEDURE

1. Power off
Switch off the power and disconnect the power plug.

2. Replace the memory IC
Be sure to use a memory IC written with the initial setting data.

3. Power on
Connect the power cord to the wall outlet and switch on the power.

4. Receiving channel setting
Refer to the OPERATING INSTRUCTIONS (USER'S GUIDE) and set the receive channels (Channels Preset) as described.

5. User settings
Check the user setting items according to the "FACTORY SETTING ITEM" table.
Where these do not agree, refer to the OPERATING INSTRUCTIONS (USER'S GUIDE) and set the items as described.

6. SERVICE MODE setting
Verify what to set in the SERVICE MODE, and set whatever is necessary(Fig.1) .
Refer to the SERVICE ADJUSTMENT for setting.

3.2.3 SERVICE MODE SETTING ITEMS

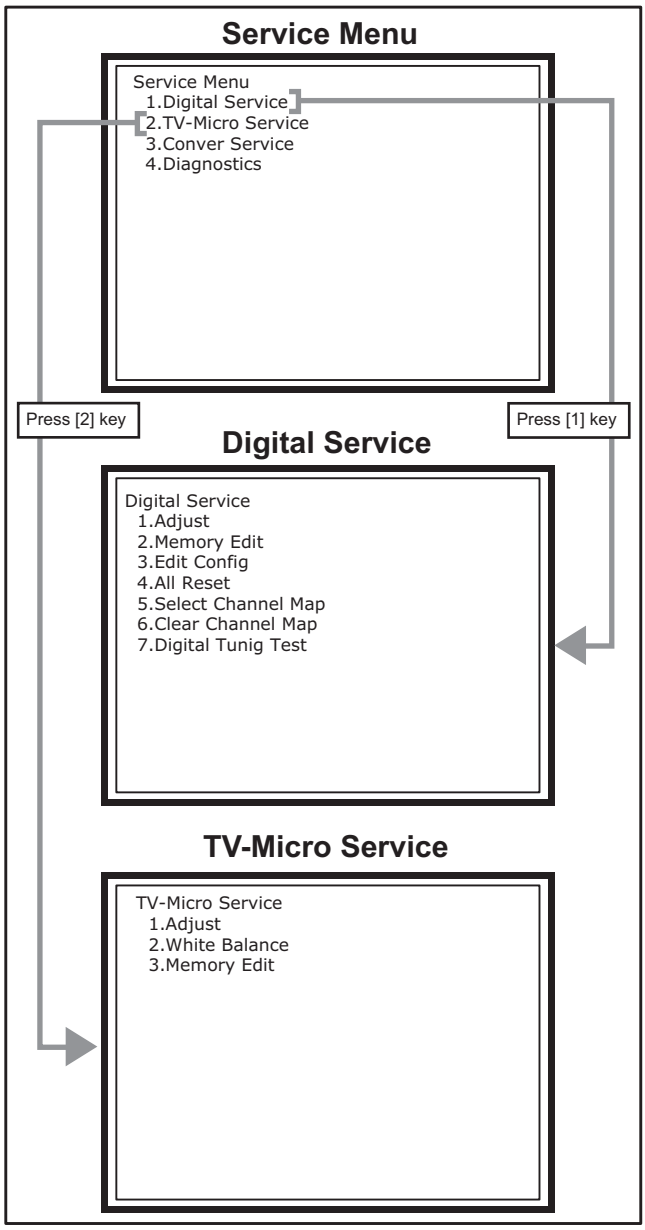


Fig.1

Setting items	Settings	Item No.
1. Digital Service		
Audio system setting	Adjust	A001~A010
2. TV-Micro Service		
Video system setting	Adjust	S001 - S045
Deflection system	Adjust	D001 - D033
Factory system setting	Fixed	F001 - F003

3.2.4 SETTINGS OF FACTORY SHIPMENT

3.2.4.1 BUTTON OPERATION

Setting item	Setting position
POWER	Off
CHANNEL	CABLE-02
VOLUME	10

3.2.4.2 REMOTE CONTROL DIRECT OPERATION

Setting item		Setting position
INPUT		TV
CHANNEL		CABLE-02
VOLUME		10
MUTING		OFF
DISPLAY		OFF
SLEEP TIMER		OFF
V. STATUS		DYNAMIC
THEAT. PRO		OFF
C.C.		OFF
MTS		STEREO
ASPECT		4 : 3
SOUND	A.H.S	OFF
	Smart Sound	OFF

3.2.4.3 REMOTE CONTROL MENU OPERATION

(1) INITIAL SETUP

Setting item	Setting position
Noise Muting	On
Language	English
Front Panel Lock	Off
V-Chip	Off
Set Lock Code	0000
Closed Caption	Auto(CC1/T1)
Auto Shut Off	Off

(2) TUNER SETUP

Setting item	Setting position
Auto Tuner Setup	Unnecessary to set

(3) EXTERNAL INPUT

Setting item	Setting position
Video Input Label	All blank

(4) SOUND ADJUST

Setting item	Setting position
Bass	0
Treble	+2
Balance	0
Optical Out	PCM
Turn On Volume	Current
Volume Limit	50

(5) CLOCK / TIMERS

Setting item	Setting position
Set Clock	Manual
On / Off Timer	Off

(6) INTERACTIVE PLUG-IN MENU

Refer to the OPERATING INSTRUCTIONS (USER'S GUIDE).

(7) PICTURE ADJUST

Customers can adjust the picture setting of menu screen as their own like but the picture standard value during factory shipment is as below.

Setting item	TINT	COLOR	PICTURE	BRIGHT	DETAIL	COLOR TEMPERATURE	VSM
STANDARD	0	0	0	0	0	LOW	ON
DINAMIC	0	0	+14	0	+10	HIGH	ON
THEATER	-3	-3	-10	+1	0	HIGH	OFF
GAME	0	+7	-10	0	+7	LOW	ON

3.3 REPLACEMENT OF CHIP COMPONENT

3.3.1 CAUTIONS

(1) Avoid heating for more than 3 seconds.
(2) Do not rub the electrodes and the resist parts of the pattern.
(3) When removing a chip part, melt the solder adequately.
(4) Do not reuse a chip part after removing it.

3.3.2 SOLDERING IRON

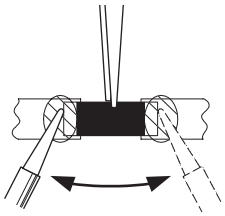
(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

3.3.3 REPLACEMENT STEPS

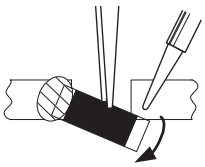
1. How to remove Chip parts

[Resistors, capacitors, etc.]

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



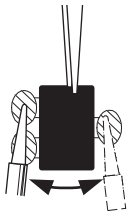
(2) Shift with the tweezers and remove the chip part.



[Transistors, diodes, variable resistors, etc.]

(1) Apply extra solder to each lead.

(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

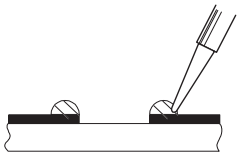


NOTE :
After removing the part, remove remaining solder from the pattern.

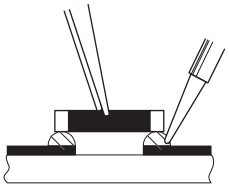
2. How to install Chip parts

[Resistors, capacitors, etc.]

(1) Apply solder to the pattern as indicated in the figure.

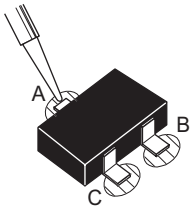


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

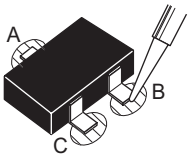


[Transistors, diodes, variable resistors, etc.]

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.



SECTION 4
ADJUSTMENT

4.1 ADJUSTMENT PREPARATION

(1) **There are 2 ways of adjusting this TV : One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.**
(2) **The adjustment using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.**
(3) Make sure that connection is correctly made AC to AC power source.
(4) Turn on the power of the TV and measuring instruments for warming up for at least 30 minutes before starting adjustments.
(5) If the receive or input signal is not specified, use the most appropriate signal for adjustment.
(6) Never touch the parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.

4.2 PRESET SETTING BEFORE ADJUSTMENTS

Unless otherwise specified in the adjustment items, preset the following functions with the REMOTE CONTROL UNIT.

Item	Preset value
VIDEO STATUS	STANDARD
PICTURE adjustment	All 00
COLOR TEMPERATURE	LOW
VSM	OFF
SOUND adjustment	All 00
A.H.S.	OFF
Smart Sound	OFF
ASPECT	4 : 3

4.3 MEASURING INSTRUMENT AND FIXTURES

- DC voltmeter (or digital voltmeter)
- DC power supply
- Oscilloscope
- Signal generator (Pattern generator) [NTSC]
- TV audio multiplex signal generator
- Remote control unit

4.4 ADJUSTMENT ITEMS

■CHECK ITEM
- B1 VOLTAGE check
- HV POTENTIAL check
- X-RAY PROTECTOR OPERATION-1 check
- X-RAY PROTECTOR OPERATION-2 check

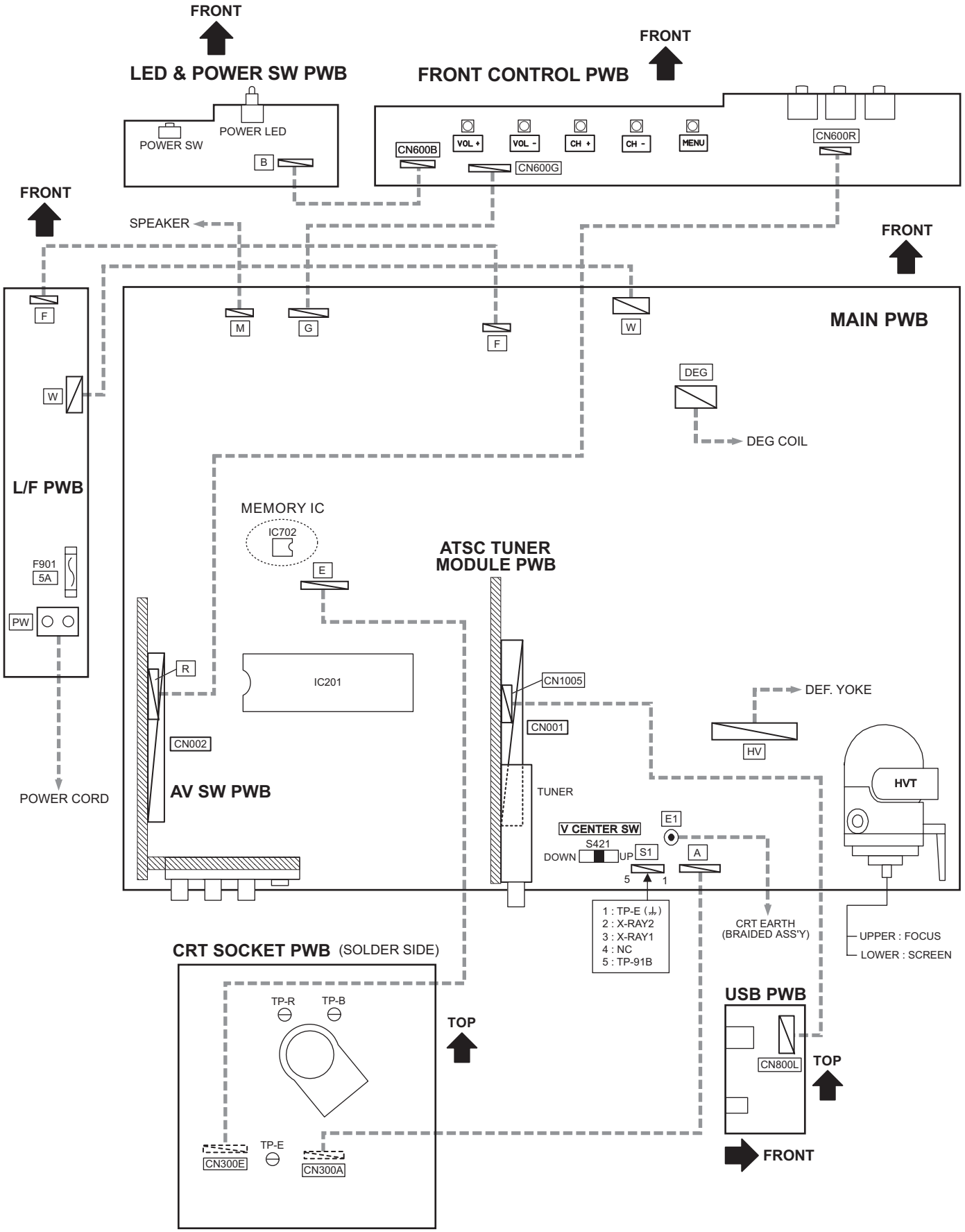
■FOCUS
- FOCUS adjustment

■DEFLECTION CIRCUIT [2.TV-Micro Service]
- V. SIZE / V. POSITION (4:3) adjustment
- V. SIZE / V. POSITION (16:9) adjustment
- H. POSITION / H. SIZE / SIDE PIN (4:3) adjustment
- H. POSITION / H. SIZE / SIDE PIN (16:9) adjustment

■VIDEO CIRCUIT [2.TV-Micro Service]
- WHITE BALANCE(High Light & Low Light) adjustment
- SUB BRIGHT adjustment
- SUB CONTRAST adjustment
- SUB COLOR adjustment
- SUB TINT adjustment

■MTS CIRCUIT [1.Digital Service]
- MTS INPUT LEVEL adjustment
- MTS SEPARATION adjustment

4.5 ADJUSTMENT LOCATIONS



4.6 SERVICE MODE

4.6.1 BASIC OPERATION OF SERVICE MODE

Operate the SERVICE MODE with the REMOTE CONTROL UNIT.

4.6.1.1 HOW TO ENTER THE SERVICE MODE

(1) Set to **"0 minutes"** using the **[SLEEP TIMER]** key.
(2) While **"0 minutes"** is displayed, press the **[VIDEO STATUS]** key and **[DISPLAY]** key simultaneously.
(3) Enter the SERVICE MODE (Fig.1)

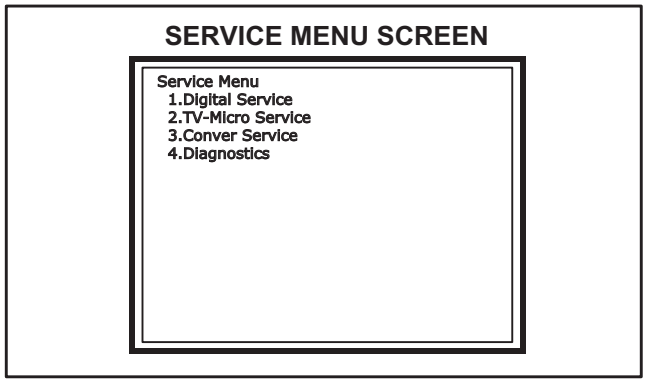


Fig.1

4.6.1.2 HOW TO EXIT THE SERVICE MODE

Press the **[MENU]** key to exit the SERVICE MODE.

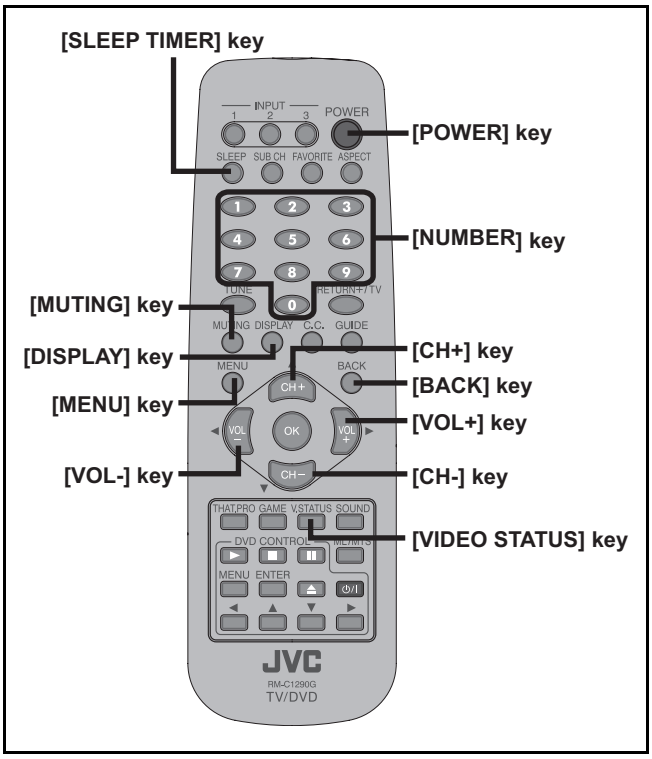
4.6.1.3 HOW TO STORE OF SETTING VALUE

When adjustment is completed, press the **[MUTING]** key to memorize the adjustment value.

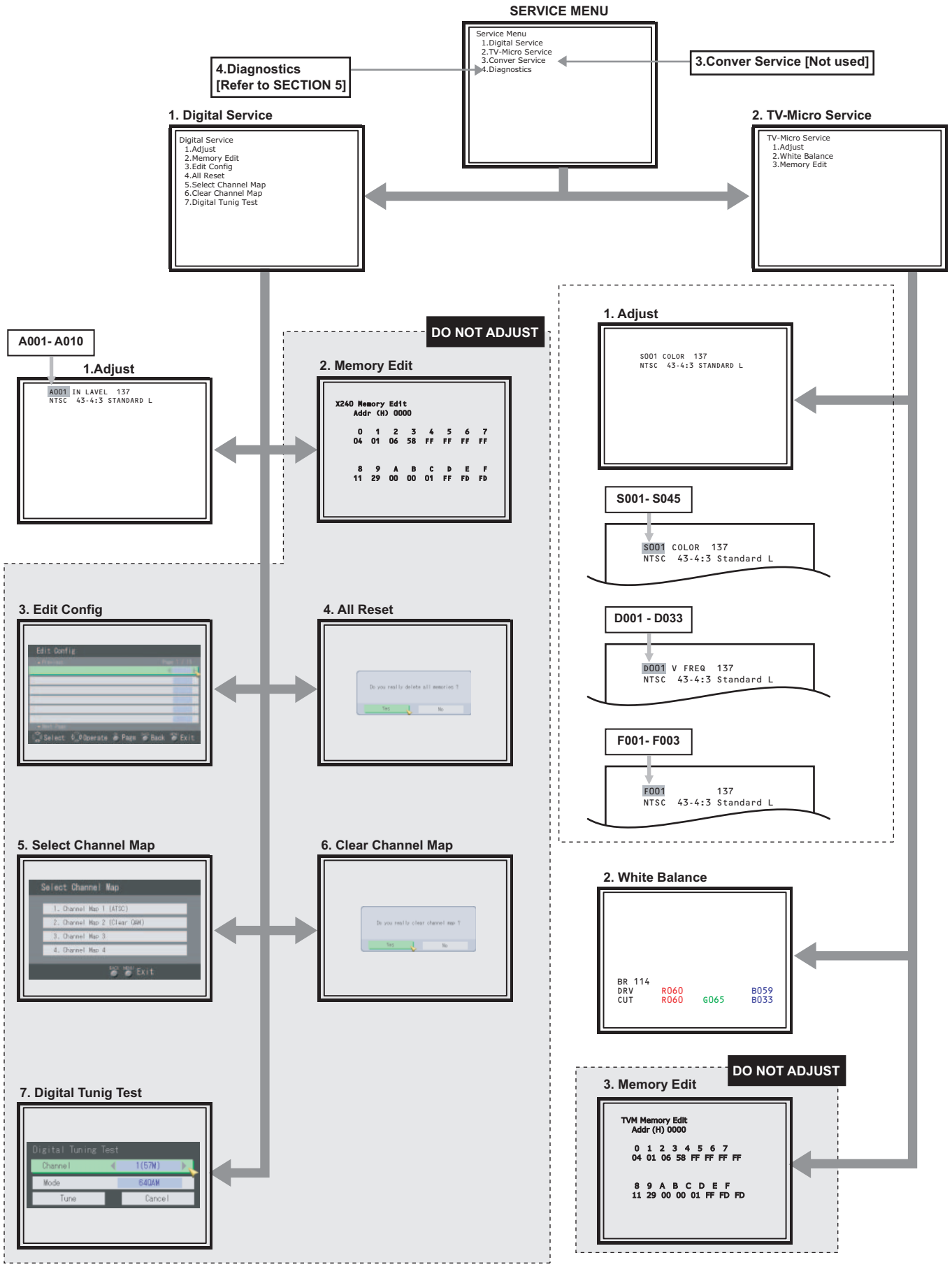
NOTE:

If not to do it, adjustment data is not memorized to the memory IC. And if exit the adjustment mode before memorize the data, the adjustment value which you change is canceled.

4.6.1.4 SERVICE MODE SELECT KEY LOCATION



4.6.2 SERVICE MODE MENU FLOW CHART

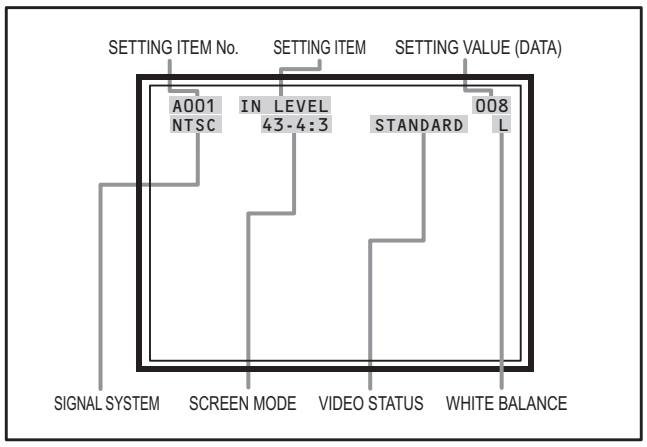


4.6.3 DESCRIPTION OF STATUS DISPLAY

The status display on the upper part of the SERVICE MODE screen is common (to all models).

4.6.3.1 DIGITAL SERVICE MODE

1. Adjust



(1) SIGNAL SYSTEM

The signal displayed on the screen is displayed.

NTSC : 525i (Composite / S-video input)
525I : 525i (Component input)
D525I : ATSC 525i
D525P : ATSC 525p
D750P : ATSC 750p
D1125I : ATSC 1125i

(2) SCREEN MODE

State of the ASPECT is displayed.

43-4:3 : 4 : 3 (Input signal 4 : 3)
43-16:9 : 16 : 9 (Input signal 4 : 3)
16-16:9 : 16 : 9 (Input signal 16 : 9)
16-4:3 : 4 : 3 (Input signal 16 : 9)
16-ZOOM : HD ZOOM (Input signal 16 : 9)

(3) VIDEO STATUS

State of the VIDEO STATUS is displayed.

STANDARD : STANDARD
DYNAMIC : DYNAMIC
THEATER : THEATER
GAME : GAME

(4) WHITE BALANCE

State of the WHITE BALANCE is displayed.

H : HIGH
L : LOW

(5) SETTING ITEM NAME

Setting item name are displayed. For the setting item names to be displayed, refer to "INITIAL SETTING VALUE OF SERVICE MODE".

(6) SETTING ITEM NO.

Setting item numbers are displayed. The setting item numbers to be displayed are listed below.

Item No.	Setting item
A001 - A010	Audio system setting

■SELECTION OF SETTING ITEM

- **[CH+]** / **[CH-]** key.
  Change the setting items up/ down.

A001... ↔ A010

(7) SETTING VALUE (DATA)

The SETTING VALUE is displayed.

■CHANGE OF SETTING VALUE (DATA)

- **[VOL+]** / **[VOL-]** key.
  Change the setting values up/down.

■MEMORY OF SETTING VALUE (DATA)

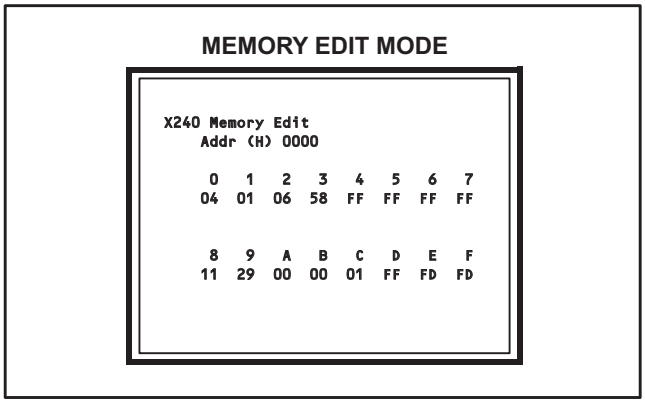
Changed setting value is memorized by pressing **[MUTING]** key.

2. Memory Edit

Data in the EEPROM is edited on this screen. [Do not adjust]

CAUTION:

This mode is not used in the ADJUSTMENT. Press the **[BACK]** key to return to the SERVICE MENU SCREEN.



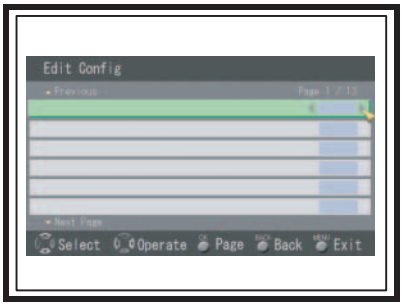
3. Edit Config

Setting value in the digital module is edited and confirmed on this screen. [Do not adjust]

CAUTION:

This mode is not used in the ADJUSTMENT. Press the **[BACK]** key to return to the SERVICE MENU SCREEN.

EDIT CONFIG MODE



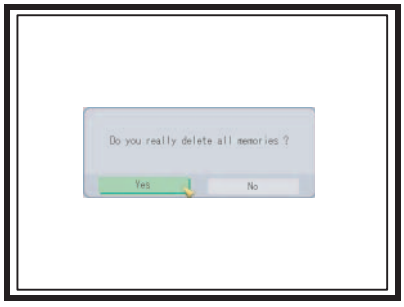
4. All reset

Data in the EEPROM is all reset on this screen. [Do not adjust]

CAUTION:

This mode is not used in the ADJUSTMENT. Press the **[BACK]** key to return to the SERVICE MENU SCREEN.

ALL RESET MODE



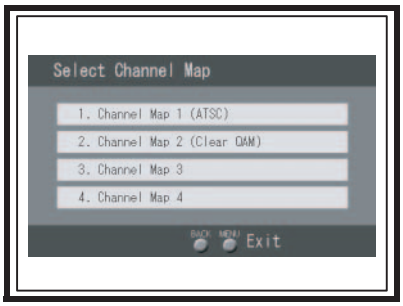
5. Select Channel Map

Channel map is forcibly rewritten on this screen.[Do not adjust]

CAUTION:

This mode is not used in the ADJUSTMENT. Press the **[BACK]** key to return to the SERVICE MENU SCREEN.

SELECT CHANNEL MAP MODE



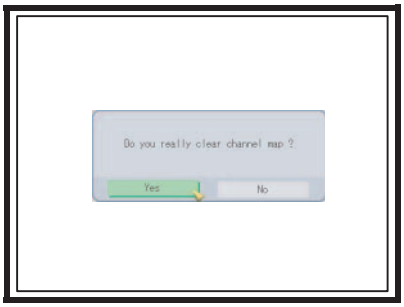
6. Clear Channel Map

Channel map is cleared on this screen. [Do not adjust]

CAUTION:

This mode is not used in the ADJUSTMENT. Press the **[BACK]** key to return to the SERVICE MENU SCREEN.

CLEAR CHANNEL MAP MODE



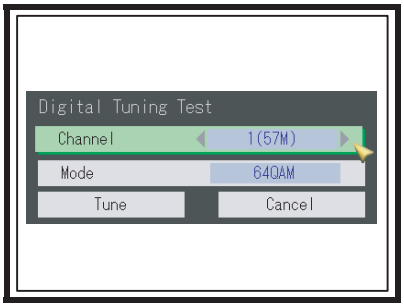
7. Digital Tuning Test

Digital channel tuning is tested on this screen. [Do not adjust]

CAUTION:

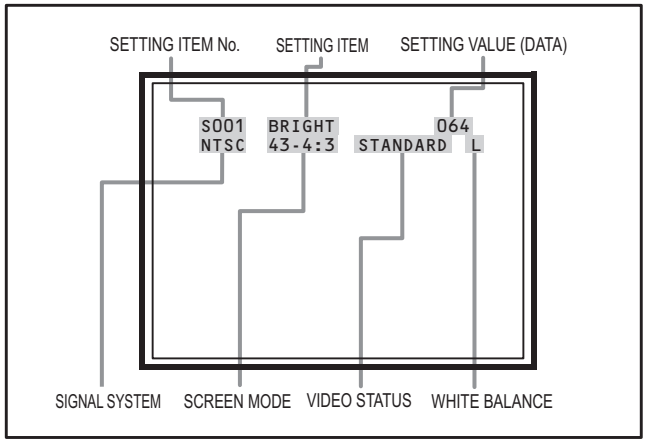
This mode is not used in the ADJUSTMENT. Press the **[BACK]** key to return to the SERVICE MENU SCREEN.

DIGITAL TUNING TEST MODE



4.6.3.2 TV-MICRO SERVICE MODE

1. Adjust



(1) SIGNAL SYSTEM

The signal displayed on the screen is displayed.

NTSC : 525i (Composite / S-video input)
525I : 525i (Component input)
D525I : ATSC 525i
D525P : ATSC 525p
D750P : ATSC 750p
D1125I : ATSC 1125i

(2) SCREEN MODE

State of the ASPECT is displayed.

43-4:3 : 4 : 3 (Input signal 4 : 3)
43-16:9 : 16 : 9 (Input signal 4 : 3)
16-16:9 : 16 : 9 (Input signal 16 : 9)
16-4:3 : 4 : 3 (Input signal 16 : 9)
16-ZOOM : HD ZOOM (Input signal 16 : 9)

(3) VIDEO STATUS

State of the VIDEO STATUS is displayed.

STANDARD : STANDARD
DYNAMIC : DYNAMIC
THEATER : THEATER
GAME : GAME

(4) WHITE BALANCE

State of the WHITE BALANCE is displayed.

H : HIGH
L : LOW

(5) SETTING ITEM NAME

Setting item name are displayed. For the setting item names to be displayed, refer to "INITIAL SETTING VALUE OF SERVICE MODE".

(6) SETTING ITEM NO.

Setting item numbers are displayed. The setting item numbers to be displayed are listed below.

Item No.	Setting item
S001 - S045	Video system setting
D001 - D033	Deflection system
F001 - F003	Factory system setting

■SELECTION OF SETTING ITEM

- **[CH+]** / **[CH-]** key.
  Change the setting items up/ down.

  S001... ↔ D001... ↔ F001...↔ S001...

- **[SLEEP TIMER]** key.
  Switch to the next items.

  S001 → D001 → F001 → S001

(7) SETTING VALUE (DATA)

The SETTING VALUE is displayed.

■CHANGE OF SETTING VALUE (DATA)

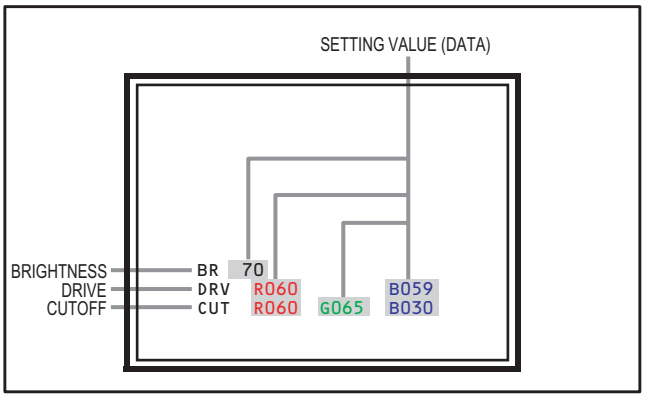
- **[VOL+]** / **[VOL-]** key.
  Change the setting values up/down.

■MEMORY OF SETTING VALUE (DATA)

Changed setting value is memorized by pressing **[MUTING]** key.

2. White Balance

White balance data is adjusted on this screen.



BRIGHTNESS

[VOL+] key : BRIGHT is up
[VOL-] key : BRIGHT is down

DRIVE

[2] key : DRIVE R is up
[5] key : DRIVE R is down
[3] key : DRIVE B is up
[6] key : DRIVE B is down

CUTOFF

[1] key : HORIZONTAL LINE on
[4] key : HORIZONTAL LINE off
[7] key : CUTOFF G is up
[TUNE] key : CUTOFF G is down
[8] key : CUTOFF R is up
[0] key : CUTOFF R is down
[9] key : CUTOFF B is up
[RETURN+] key : CUTOFF B is down

■MEMORY OF SETTING VALUE (DATA)

Changed setting value is memorized by pressing **[MUTING]** key.

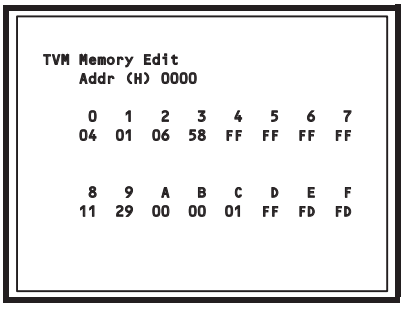
3. Memory Edit

Data in the EEPROM is edited on this screen. [Do not adjust]

CAUTION:

This mode is not used in the ADJUSTMENT. Press the **[BACK]** key to return to the SERVICE MENU SCREEN.

MEMORY EDIT MODE



4.7 INITIAL SETTING VALUE OF SERVICE MODE

(1) Adjustment of the SERVICE MODE is made on the basis of the initial setting values ; however, the new setting values which set the screen in its optimum condition may differ from the initial setting.
(2) Do not change the initial setting values of the setting items NOT LISTED IN ADJUSTMENT PROCEDURE.
(3) --- : This mark described in each table shows "Cannot adjust it."

4.7.1 [1. Digital Service]

4.7.1.1 SOUND SETTING

No.	Setting item	Variable range	Initial setting value
A001	IN LEVEL	0 - 15	6
A002	LOW SEP	0 - 63	30
A003	HIGH SEP	0 - 63	30
A004	BASS OFS	-128 - 127	0
A005	TREB OFS	-128 - 127	0

No.	Setting item	Variable range	Initial setting value
A006	AHS MVE	-128 - 127	-4
A007	AHS MSC	-128 - 127	-2
A008	AGC FLAT	0 - 3	1
A009	BBE BASS	-128 - 127	-1
A010	BBE TREB	-128 - 127	1

4.7.2 [2. TV-Micro Service]

4.7.2.1 VIDEO SETTING

No.	Setting item	Variable range	Initial setting value					
			AV-27F577/R AV-27F577/S			AV-32F577/R AV-32F577/Y AV-32F577/Z		
			RF					
			STANDARD		THEATER	STANDARD		THEATER
			4 : 3	16 : 9	4 : 3	4 : 3	16 : 9	4 : 3
S001	BRIGHT	000 - 127	064	---	---	064	---	---
S002	PICTURE	000 - 127	045	---	---	047	---	---
S003	COLOR	000 - 127	054	---	---	050	---	---
S004	TINT	000 - 127	063	---	---	063	---	---
S005	DETAIL	000 - 063	035	---	---	045	---	---
S006	BRIGHT+-	-128 - +127	---	±000	±000	---	±000	±000
S007	PICT+-	-128 - +127	---	-006	±000	---	-008	±000
S008	COLOR+-	-128 - +127	---	±000	±000	---	±000	±000
S009	TINT+-	-128 - +127	---	±000	±000	---	±000	±000
S010	DETAIL+-	-128 - +127	---	---	±000	---	---	±000

No.	Setting item	Variable range	Initial setting value				
			EXTERNAL (S / COMPOSITE)		EXTERNAL (COMPONENT)		ATSC
			AV-27F577/R AV-27F577/S	AV-32F577/R AV-32F577/Y AV-32F577/Z	AV-27F577/R AV-27F577/S	AV-32F577/R AV-32F577/Y AV-32F577/Z	
			STANDARD				
			4 : 3				
S003	COLOR	000 - 127	---	---	048	043	---
S004	TINT	000 - 127	---	---	068	068	---
S005	DETAIL	000 - 063	040	045	040	040	040
S006	BRIGHT+-	-128 - +127	±000	±000	±000	±000	+006
S007	PICT+-	-128 - +127	±000	±000	±000	±000	±000
S008	COLOR+-	-128 - +127	-004	-004	---	---	-007
S009	TINT+-	-128 - +127	+003	+003	---	---	+014

No.	Setting item	Variable range	Initial setting value							
			AV-27F577/R AV-27F577/S							
			RF / EXTERNAL (S / COMPOSITE)				EXTERNAL (COMPONENT) / ATSC			
			STANDARD		THEATER		STANDARD		THEATER	
			LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
S011	R CUT OFF	000 - 255	030	---	---	---	---	---	---	---
S012	G CUT OFF	000 - 255	030	---	---	---	---	---	---	---
S013	B CUT OFF	000 - 255	030	---	---	---	---	---	---	---
S014	R DRIVE	000 - 127	064	---	---	---	---	---	---	---
S015	B DRIVE	000 - 127	064	---	---	---	---	---	---	---
S016	R CUT +-	-128 - +127	---	±000	±000	±000	±000	---	---	---
S017	G CUT +-	-128 - +127	---	±000	±000	±000	±000	---	---	---
S018	B CUT +-	-128 - +127	---	±000	±000	±000	±000	---	---	---
S019	R DRV +-	-128 - +127	---	+005	+013	+007	±000	---	---	---
S020	B DRV +-	-128 - +127	---	+006	-025	-009	±000	---	---	---
S021	NTSC MAT	000 - 003	003	003	001	001	002	002	001	001
S022	BLACK ST	000 - 003	001	---	001	---	---	---	---	---
S023	DC REST	000 - 001	001	---	001	---	---	---	---	---
S024	DCRSW	000 - 001	001	---	001	---	---	---	---	---

No.	Setting item	Variable range	Initial setting value							
			AV-32F577/R AV-32F577/Y AV-32F577/Z							
			RF / EXTERNAL (S / COMPOSITE)				EXTERNAL (COMPONENT) / ATSC			
			STANDARD		THEATER		STANDARD		THEATER	
			LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
S011	R CUT OFF	000 - 255	030	---	---	---	---	---	---	---
S012	G CUT OFF	000 - 255	030	---	---	---	---	---	---	---
S013	B CUT OFF	000 - 255	030	---	---	---	---	---	---	---
S014	R DRIVE	000 - 127	064	---	---	---	---	---	---	---
S015	B DRIVE	000 - 127	064	---	---	---	---	---	---	---
S016	R CUT +-	-128 - +127	---	±000	±000	±000	±000	---	---	---
S017	G CUT +-	-128 - +127	---	±000	±000	±000	±000	---	---	---
S018	B CUT +-	-128 - +127	---	±000	±000	±000	±000	---	---	---
S019	R DRV +-	-128 - +127	---	+005	+013	+007	±000	---	---	---
S020	B DRV +-	-128 - +127	---	+006	-025	-009	±000	---	---	---
S021	NTSC MAT	000 - 003	003	003	001	001	002	002	001	001
S022	BLACK ST	000 - 003	001	---	001	---	---	---	---	---
S023	DC REST	000 - 001	001	---	001	---	---	---	---	---
S024	DCRSW	000 - 001	001	---	001	---	---	---	---	---

No.	Setting item	Variable range	Initial setting value			
			RF	EXTERNAL (S / COMPOSITE)	EXTERNAL (COMPONENT)	ATSC
S025	ASY SHRP	000 - 007	004	004	004	004
S026	BPF F0	000 - 001	000	000	---	---
S027	KILR OFF	000 - 001	000	000	---	---
S028	KILR SEN	000 - 001	001	001	---	---

No.	Setting item	Variable range	Initial setting value	
			AV-27F577/R AV-27F577/S	AV-32F577/R AV-32F577/Y AV-32F577/Z
S029	RGB MUTE	000 - 001	000	000
S030	BLUE B	000 - 001	000	000
S031	CMP ABCL	000 - 001	000	000
S032	OSD ABL	000 - 001	000	000
S033	OSD CONT	000 - 063	007	008
S034	SUB CONT	000 - 015	005	005
S035	ABL GAIN	000 - 003	000	000
S036	ABL PNT	000 - 003	003	003
S037	Y GAMMA	000 - 003	001	001
S038	Y MUTE	000 - 001	000	000
S039	SVM GAIN	000 - 003	003	003
S040	SVM PH	000 - 003	002	003
S041	WPL	000 - 001	000	000
S042	COL GMM	000 - 001	000	000
S043	V1 GAIN	000 - 007	004	004
S044	VMOFF DE	-128 - +127	+003	+003
S045	PIP ADJ	000 - 015	004	008

4.7.2.2 DEFLECTION SETTING

No.	Setting item	Variable range	Initial setting value		
			RF	EXTERNAL	ATSC
D001	V FREQ	000 - 003	000	003	003
D002	AFC GAIN	000 - 003	000	002	002

No.	Setting item	Variable range	Initial setting value									
			AV-27F577/R		AV-27F577/S		AV-32F577/R		AV-32F577/Y		AV-32F577/Z	
			4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9
D003	H POSI	000 - 031	022	---	022	---	021	---	019	---	019	---
D004	H POSI+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D005	V PHASE	000 - 007	000	---	000	---	000	---	000	---	000	---
D006	V PH+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D007	V SIZE	000 - 127	107	---	096	---	076	---	045	---	058	---
D008	V SIZE+-	-128 - +127	---	-028	---	-030	---	-027	---	-023	---	-022
D009	V CENTER	000 - 063	032	---	032	---	032	---	032	---	032	---
D010	V CENT+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D011	V S CORR	000 - 015	007	---	007	---	009	---	008	---	009	---
D012	V S CO+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D013	V LIN	000 - 015	010	---	010	---	010	---	012	---	010	---
D014	V LIN+-	-128 - +127	---	±000	---	±000	---	±000	---	-003	---	±000
D015	H SIZE	000 - 063	032	---	032	---	050	---	028	---	049	---
D016	H SIZE+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D017	WVMT TOP	000 - 003	000	000	000	000	000	000	000	000	000	000
D018	WVMT BTM	000 - 003	000	000	000	000	000	000	000	000	000	000
D019	EWCR TOP	000 - 031	017	---	015	---	013	---	011	---	014	---

No.	Setting item	Variable range	Initial setting value									
			AV-27F577/R		AV-27F577/S		AV-32F577/R		AV-32F577/Y		AV-32F577/Z	
			4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9
D020	EWCR T+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D021	EWCR BTM	000 - 031	016	---	013	---	014	---	016	---	010	---
D022	EWCR B+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D023	EW PARA	000 - 063	042	---	027	---	045	---	035	---	037	---
D024	EW PARA+-	-128 - +127	---	-016	---	-010	---	-016	---	-013	---	-012
D025	V EHT	000 - 007	000	---	000	---	000	---	000	---	000	---
D026	V EHT+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D027	H EHT	000 - 007	000	---	000	---	000	---	000	---	000	---
D028	H EHT+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000
D029	TRAPEZ	000 - 063	031	---	029	---	031	---	034	---	032	---
D030	TRAPEZ+-	-128 - +127	---	±000	---	±000	---	±000	---	±000	---	±000

No.	Setting item	Variable range	Initial setting value
D031	V AGC	000 - 001	000
D032	BLANK SW	000 - 001	000
D033	VRMP BI	000 - 001	000

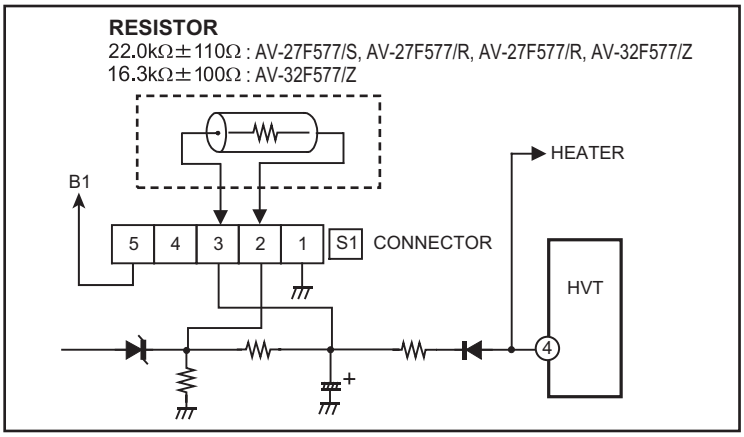
4.7.2.3 FACTORY SETTING

No.	Setting item	Variable range	Initial setting value	
			AV-27F577/R AV-27F577/S	AV-32F577/R AV-32F577/Y AV-32F577/Z
F001	(NO DISPLAY)	000 - 255	039	042
F002	(NO DISPLAY)	000 - 255	090	090
F003	(NO DISPLAY)	000 - 001	001	001

4.8 ADJUSTMENT PROCEDURE

4.8.1 CHECK ITEM

<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>B1 VOLTAGE</td><td>DC voltmeter</td><td>S1 connector
1-pin : TP-E
5-pin : TP-91B
[MAIN PWB]</td><td></td><td>(1) Receive the black and white signal. (color off)
(2) Connect the DC voltmeter to the 1-pin and 5-pin of S1 connector.
(3) Confirm that the voltage is DC134.5V±2V.</td></tr>
<tr><td>HV POTENTIAL</td><td>HV voltmeter</td><td>CRT anode

Chassis GND</td><td>SCREEN VR
[In HVT]</td><td rowspan="2">(1) Receive any broadcast.
(2) Turn the SCREEN VR to make cut-off screen (black screen).
(3) Connect the earth clip of HV voltmeter to chassis GND.
(4) Connect the probe of HV voltmeter to CRT anode.
(5) Confirm that the voltage is within a value as shown left table.
NOTE:
Remove the probe before removing the earth clip.</td></tr>
<tr><td colspan="4"><table><tr><th>Model</th><th>27 inch</th><th>32 inch</th></tr><tr><td>VOLTAGE</td><td>30.0kV±1.3kV</td><td>31.4kV±1.3kV</td></tr></table></td></tr>
<tr><td>X-RAY PROTECTOR OPERATION-1</td><td>DC power supply</td><td>S1 connector
1-pin : TP-E
3-pin : X-RAY1
[MAIN PWB]</td><td></td><td rowspan="2">(1) Receive any broadcast.
(2) Apply DC 20V between the 1-pin and 3-pin of S1 connector.
(3) Increase the DC voltage slowly.
(4) Confirm that the screen picture disappeares until the DC voltage as shown left table.
(5) Disconnect the power plug.
(6) Again connect the power plug.
(7) Turn the power switch to on.
(8) Make sure that the normal picture is displayed on the screen.</td></tr>
<tr><td colspan="4"><table><tr><th>Model</th><th>27 inch</th><th>32 inch</th></tr><tr><td>VOLTAGE</td><td>33.2V</td><td>32.25V</td></tr></table></td></tr>
<tr><td>X-RAY PROTECTOR OPERATION-2</td><td>Resistor (1/4W)</td><td>S1 connector
2-pin : X-RAY2
3-pin : X-RAY1
[MAIN PWB]</td><td></td><td rowspan="2">(1) Receive any broadcast.
(2) Refer to the figure, connect the resistor between 2-pin and 3-pin of S1 connector.
(3) Make sure that the screen picture disappeares.
(4) Disconnect the power plug.
(5) Remove the resistor.
(6) Again connect the power plug.
(7) Turn the power switch to on.
(8) Make sure that the normal picture is displayed on the screen.</td></tr>
<tr><td colspan="4">RESISTOR
22.0kΩ±110Ω : AV-27F577/S, AV-27F577/R, AV-27F577/R, AV-32F577/Z
16.3kΩ±100Ω : AV-32F577/Z
 
</td></tr>
</table>

4.8.2 FOCUS

Item	Measuring instrument	Test point	Adjustment part	Description
FOCUS	Signal generator		FOCUS VR [In HVT]	(1) Receive the crosshatch signal. (2) While watching at the screen, adjust the **FOCUS VR** so that the vertical and horizontal lines get the thinnest and sharpest center horizontal line. (3) Make sure that the picture is in focus even when the screen gets darkened.

4.8.3 DEFLECTION CIRCUIT [2.TV-Micro Service]

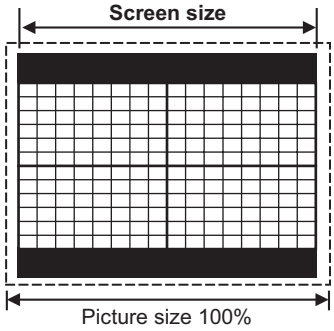
<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>V. SIZE /
V. POSITION
(4:3)</td><td>Signal generator

Remote control unit</td><td></td><td>[1.Adjust]
D05: V PHASE
D07: V SIZE
D11: VS CORR
D13: V LIN

V. CENTER SW
(S421)
[MAIN PWB]</td><td>(1) Receive the crosshatch signal.
(2) Select the 2.TV-Micro Service from the SERVICE MODE.
(3) Select the 1. Adjust.
(4) Select < D05 > (V PHASE).
(5) Confirm that the value of < D05 > is 0.
(6) Adjust V. CENTER SW to agree the vertical center with the display center.
(7) Select < D07 > (V SIZE).
(8) Adjust < D07 > so that the vertical screen size becomes 92% of the vertical picture size.
(9) Press the [MUTING] key to memorize the set value.
NOTE:
• Bottom is to be located within the 85%-95% range.
• When vertical linearity is not even, adjust < D13 > (V LIN) and < D11 > (VS CORR) to vertical linearity.</td></tr>
<tr><td colspan="3">Screen size
Picture size 100%</td></tr>
<tr><td>V. SIZE /
V. POSITION
(16:9)</td><td>Signal generator

Remote control unit</td><td></td><td rowspan="2">[1.Adjust]
D08: V SIZE+-
D14: V LIN+-</td><td rowspan="2">• V. SIZE / V. POSITION (4:3) adjustment should be finished.
(1) Receive the black and white signal (color off).
(2) Select the ASPECT to 16:9 mode.
(3) Select the 2.TV-Micro Service from the SERVICE MODE.
(4) Select the 1. Adjust.
(5) Confirm that the width of V. BLANKING is equal to adjustment value (B).
(6) If the value (B) is not correct, adjust < D08 > (V SIZE+-) and < D14 > (V LIN+-) to be same to adjustment value (B).
(7) Press the [MUTING] key to memorize the set value.
NOTE :
• When you change the VERTICAL adjustment value of the regular mode (4:3), review the adjustment of 16:9 mode again.</td></tr>
<tr><td colspan="3">B
[B=B']
B'
<table><tr><th>Adjust point</th><th>Setting value</th></tr><tr><td rowspan="2">B</td><td>50 mm (27 inch models)</td></tr><tr><td>60 mm (32 inch models)</td></tr></table></td></tr>
<tr><td>H. SIZE /
H. POSITION /
SIDE PIN
(4:3)</td><td>Signal generator

Remote control unit</td><td></td><td>[1.Adjust]
D03: H POSI
D15: H SIZE
D23: EW PARA
D19: EWCR TOP
D21: EWCR BTM</td><td>• FORCUS adjustment should be finished.
• V. SIZE / V. POSITION adjustment should be finished.
(1) Receive the crosshatch signal.
(2) Select the 2.TV-Micro Service from the SERVICE MODE.
(3) Select the 1. Adjust.
(4) Select < D03 > (H POSI).
(5) Adjust < D03 > so that the left width and right width of the crosshatch screen become equal.
(6) Select < D15 > (H SIZE).
(7) Adjust < D15 > so that the horizontal screen size becomes 90% of the horizontal picture size.
(8) Select < D23 > (EW PARA).
(9) Adjust < D23 > to vertical line at both side to become straight.
(10) If it is necessary, readjust step 3 to 9.
(11) Press the [MUTING] key to memorize the set value.
NOTE:
If it is not straight at the vertical upper and bottom corner line, adjust the upper and bottom conrner pin by < D19 > (EWCR TOP) and < D21 > (EWCR BTM).</td></tr>
<tr><td colspan="3">Screen size
Picture size 100%</td></tr>
</table>

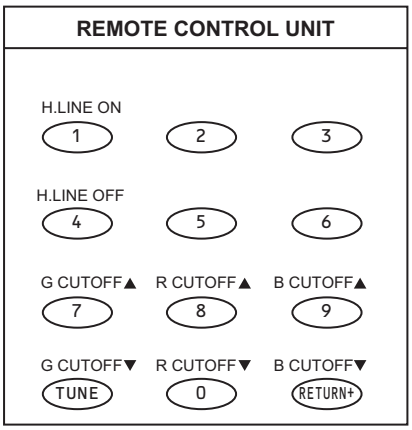
Item	Measuring instrument	Test point	Adjustment part	Description
H. POSITION / H. SIZE / SIDE PIN (16:9)	Signal generator Remote control unit		[1.Adjust] D16: H SIZE+- D04: H POSI+- D24: EW PARA+- D20: EWCR T+- D22: EWCR B+-	• FORCUS adjustment should be finished. • V. SIZE / V. POSITION adjustment should be finished. • H. SIZE / H. POSITION / SIDE PIN adjustment should be finished. (Regular size(4:3)). (1) Receive the crosshatch signal. (2) Select the ASPECT to 16:9 mode. (3) Select the **2.TV-Micro Service** from the SERVICE MODE. (4) Select the **1. Adjust**. (5) Confirm both sides of crosshatch to be the adjustment value **90%**. (6) If the value is not correct, adjust **< D16 >** (H SIZE+-) and **< D04 >** (H POSI+-) so that the horizontal screen size becomes 90% of the horizontal picture size. (7) Confirm the second vertical line from left and right to be straight. (8) If it is not straight, adjust to be straight by **< D24 >** (EW PARA+-), **< D20 >** (EWCR T+-) and **< D22 >** (EWCR B+-). (9) Press the **[MUTING]** key to memorize the set value. **NOTE :** • Review the adjustment of 16:9 mode again when you change the SIDE PIN adjustment value of regular (4:3) mode.
				

4.8.4 VIDEO CIRCUIT [2.TV-Micro Service]

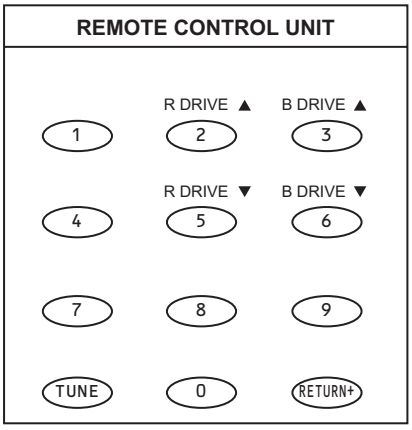
<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>WHITE BALANCE (LOW LIGHT)</td><td>Signal generator

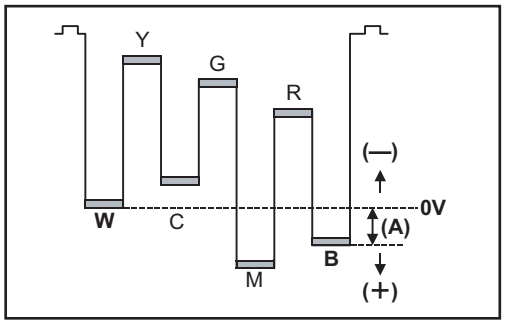
Remote control unit</td><td></td><td>[1.Adjust]
S01: BRIGHT
S11: R CUTOFF
S12: G CUTOFF
S13: B CUTOFF

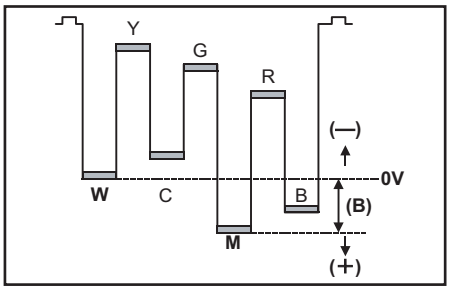
[2.White Blance]

SCREEN VR [in HVT]</td><td>(1) Receive the black and white signal (color off).
(2) Set VIDEO STATUS to "STANDARD".
(3) Select COLOR TEMPERATURE to "LOW".
(4) Select the 2.TV-Micro Service from the SERVICE MODE.
(5) Select the 1. Adjust.
(6) Set the initial setting value of < S11 > (R CUTOFF), < S12 > (G CUTOFF), < S13 > (B CUTOFF) and < S01 > (BRIGHT).
(7) Return to the 2.TV-Micro Service MENU.
(8) Select the 2. White Balance.
(9) Display a single horizontal line by pressing the [1] key.
(10) Turn the SCREEN VR all the way to the left.
(11) Turn the SCREEN VR gradually to the right from the left until either one of the red, blue or green colors appears faintly.
(12) Adjust the two colors which did not appear until the single horizontal line becomes white by using the [7] to [0] keys, [TUNE] and [RETURN+].
(13) Turn the SCREEN VR until the single horizontal line is displayed faintly.
(14) Press the [MUTING] key to memorize the set value.
(15) Press the [4] key to cancel the single horizontal line mode.
(16) Adjust the BRIGHT level so that the black component shines white slightly by the [VOL+] / [VOL-] key.
(17) Confirm that whether the color ingredient of R, G, or B is visible to the black component, which shines white slightly.
(18) When the color ingredient can be seen, two colors other than a visible color are adjusted, and it is made to look white.
(19) Press the [MUTING] key to memorize the set value.</td></tr>
<tr><td colspan="3"> 
</td></tr>
<tr><td>WHITE BALANCE (HIGH LIGHT)</td><td>Signal generator

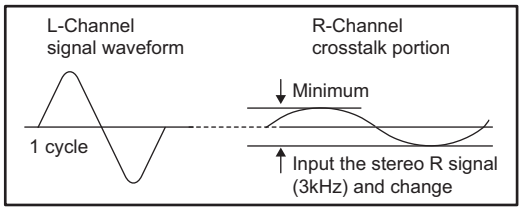
Remote control unit</td><td></td><td>[1.Adjust]
S14: R DRIVE
S15: B DRIVE

[2.White Blance]</td><td>• WHITE BALANCE(LOW LIGHT) adjustment should be finished.
(1) Receive the black and white signal (color off).
(2) Set VIDEO STATUS to "STANDARD".
(3) Select COLOR TEMPERATURE to "LOW".
(4) Select the 2.TV-Micro Service from the SERVICE MODE.
(5) Select the 1. Adjust.
(6) Set the initial setting value of < S14 > (R DRIVE) and < S15 > (B DRIVE).
(7) Return to the 2.TV-Micro Service MENU.
(8) Select the 2. White Balance.
(9) Adjust the screen until it becomes white by using the [2], [3], [5] and [6] keys.
(10) Press the [MUTING] key to memorize the set value.</td></tr>
<tr><td colspan="3"> 
</td></tr>
</table>

Item	Measuring instrument	Test point	Adjustment part	Description
SUB BRIGHT	Remote control unit		[1.Adjust] S01: BRIGHT	• WHITE BALANCE adjustment should be finished. (1) Receive any broadcast. (2) Set VIDEO STATUS to **"STANDARD"**. (3) Select COLOR TEMPERATURE to **"LOW"**. (4) Select the **2.TV-Micro Service** from the SERVICE MODE. (5) Select the **1. Adjust**. (6) Select **< S01 >** (BRIGHT). (7) Set the initial setting value of **< S01 >**. (8) If the brightness is not the best with the initial setting value, make fine adjustment of **< S01 >** until you get the optimum brightness. (9) Press the **[MUTING]** key to memorize the set value.
SUB CONTRAST	Remote control unit		[1.Adjust] S02: PICTURE	• SUB BRIGHT adjustment should be finished. (1) Receive any broadcast. (2) Set VIDEO STATUS to **"STANDARD"**. (3) Select COLOR TEMPERATURE to **"LOW"**. (4) Select the **2.TV-Micro Service** from the SERVICE MODE. (5) Select the **1. Adjust**. (6) Select **< S02 >** (PICTURE). (7) Set the initial setting value of **< S02 >**. (8) If the contrast is not the best with the initial setting value, make fine adjustment of the **< S02 >** until you get the optimum contrast. (9) Press the **[MUTING]** key to memorize the set value.
SUB COLOR	Remote control unit		[1.Adjust] S03 : COLOR	**[Method of adjustment without measuring instrument]** • SUB CONTRAST adjustment should be finished. (1) Receive any broadcast. (2) Set VIDEO STATUS to **"STANDARD"**. (3) Select COLOR TEMPERATURE to **"LOW"**. (4) Select the **2.TV-Micro Service** from the SERVICE MODE. (5) Select the **1. Adjust**. (6) Select **< S03 >**(COLOR). (7) Set the initial setting value of the **< S03 >**. (8) If the color is not the best with the initial setting values, make fine adjustment until you get the best color. (9) Press the **[MUTING]** key to memorize the set value.
	Signal generator Oscilloscope Remote control unit	TP-B TP-E [CRT SOCKET PWB]	[1.Adjust] S03 : COLOR	**[Method of adjustment using measuring instrument]** • SUB CONTRAST adjustment should be finished. (1) Input the full color bar signal includes the 75% white. (2) Set VIDEO STATUS to **"STANDARD"**. (3) Select COLOR TEMPERATURE to **"LOW"**. (4) Select the **2.TV-Micro Service** from the SERVICE MODE. (5) Select the **1. Adjust**. (6) Select **< S03 >**(COLOR). (7) Set the initial setting value of the **< S03 >**. (8) Connect the oscilloscope between TP-B and TP-E. (9) Adjust **< S03 >** and bring the voltage of **(A)** in the illustration to **+17V**. (voltage difference between white and blue). (10) Press the **[MUTING]** key to memorize the set value.
				

Item	Measuring instrument	Test point	Adjustment part	Description
SUB TINT	Remote control unit		[1.Adjust] S04 : TINT	**[Method of adjustment without measuring instrument]** • SUB CONTRAST adjustment should be finished. (1) Receive any broadcast. (2) Set VIDEO STATUS to **"STANDARD"**. (3) Select COLOR TEMPERATURE to **"LOW"**. (4) Select the **2.TV-Micro Service** from the SERVICE MODE. (5) Select the **1. Adjust**. (6) Select **< S04 >**(TINT). (7) Set the initial setting value of the **< S04 >**. (8) If the tint is not the best with the initial setting values, make fine adjustment until you get the best tint. (9) Press the **[MUTING]** key to memorize the set value.
	Signal generator Oscilloscope Remote control unit	TP-B TP-E [CRT SOCKET PWB]	[1.Adjust] S04 : TINT	**[Method of adjustment using measuring instrument]** • SUB CONTRAST adjustment should be finished. (1) Input the full color bar signal includes the 75% white. (2) Set VIDEO STATUS to **"STANDARD"**. (3) Select COLOR TEMPERATURE to **"LOW"**. (4) Select the **2.TV-Micro Service** from the SERVICE MODE. (5) Select the **1. Adjust**. (6) Select **< S04 >**(TINT). (7) Set the initial setting value of the **< S04 >**. (8) Connect the oscilloscope between TP-B and TP-E. (9) Adjust **< S04 >** and bring the voltage of **(B)** in the illustration to **+17V**. (voltage difference between white and magenta). (10) Press the **[MUTING]** key to memorize the set value.
				

4.8.5 MTS CIRCUIT [1.Digital Service]

Item	Measuring instrument	Test point	Adjustment part	Description
MTS INPUT LEVEL	Remote control unit		[1.Adjust] A01: IN LEVEL	(1) Receive any broadcast. (2) Select the **1.Digital Service** from the SERVICE MODE. (3) Select the **1.Adjust**. (4) Select the **< A01 >** (IN LEVEL). (5) Set the initial setting value of **< A01 >**. (6) Press the **[MUTING]** key to memorize the set value.
MTS SEPARATION	TV audio multiplex signal generator Oscilloscope Remote control unit	R OUT L OUT [AUDIO OUT]	[1.Adjust] A02: LOW SEP A03: HIGH SEP	(1) Input the stereo L signal (300 Hz) from the TV audio multiplex signal generator to the antenna terminal. (2) Connect an oscilloscope to R OUT pin of the AUDIO OUT, and display one cycle portion of the 300 Hz signal. (3) Select the **1.Digital Service** from the SERVICE MODE. (4) Select the **1.Adjust**. (5) Select the **< A02 >** (LOW SEP). (6) Set the initial setting value of **< A02 >**. (7) Adjust the **< A02 >** so that the stroke element of the 300Hz signal will become minimum. (8) Press the **[MUTING]** key to memorize the set value. (9) Input the stereo R signal (3kHz) and change the connection of the oscilloscope to L OUT pin of the AUDIO OUT. (10) Similarly adjust **< A03 >** (HIGH SEP). (11) Press the **[MUTING]** key to memorize the set value.
				

SECTION 5
TROUBLESHOOTING

5.1 SELF CHECK FEATURE

5.1.1 OUTLINE

This unit comes with the "Self check" feature, which checks the operational state of the circuit and displays/saves it during failure. Diagnosis is performed when power is turned on, and information input to the main microcomputer is monitored at all time. Failure detection is based on input state of I^2C bus and the various control lines connected to the main microcomputer.

5.1.2 HOW TO ENTER THE SELF CHECK MODE

(1) Set to "**0 minutes**" using the **[SLEEP TIMER]** key.
(2) While **"0 minutes"** is displayed, press the **[VIDEO STATUS]** key and **[DISPLAY]** key simultaneously, then enter the SERVICE MODE.
(3) Press the **[4]** key (4.Diagnostics) in the SERVICE MENU SCREEN. (Fig.1)
(4) Press the **[3]** key (3.Self check) in the DIAGNOSTICS MODE screen. (Fig.2)
(5) The SELF CHECK MODE screen is displayed. (Fig.3)
(6) Press the **[VOL+]** / **[VOL-]** key to switch between the first page and the second page.

NOTE:

When a number key other than the **[4]** key is pressed in the SERVICE MENU SCREEN, the other relevant screen may be displayed.
This is not used in the SELF CHECK MODE. Press the **[BACK]** key to return to the SERVICE MENU SCREEN.

5.1.3 HOW TO EXIT THE SELF CHECK MODE

TO SAVE FAILURE HISTORY:

Turn off the power by unplugging the AC power cord plug when in the SELF CHECK MODE.

TO CLEAR (RESET) FAILURE HISTORY:

Turn off the power by pressing the key on the remote control unit when in the SELF CHECK MODE.

5.1.4 FAILURE HISTORY

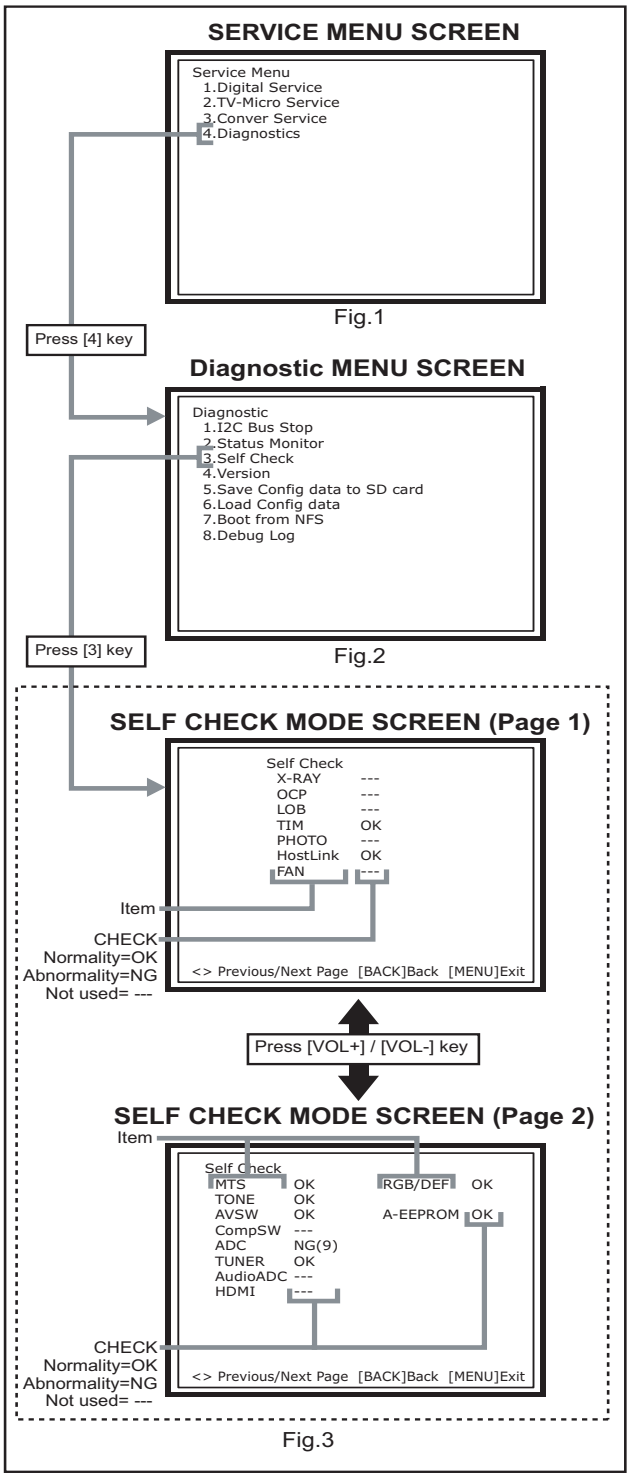
Failure history can be counted up to 9 times for each item. When the number exceeds 9, display will remain as 9. Failure history will be stored in the memory unless it has been deleted.

5.1.5 POINTS TO NOTE WHEN USING THE SELF CHECK FEATURE

In addition to circuit failures (abnormal operation), the following cases may also be diagnosed as "Abnormal" and displayed and counted as "NG".

(1) Temporary defective transmissions across circuits due to pulse interruptions
(2) Misalignment in the on/off timing of power for I^2C bus (VCC) when turning on/off the main power.

Diagnosis may be impeded if a large number of items are displayed as "NG". As such, start Self check check only after 3 seconds in the case of receivers and 5 seconds in the case of panels upon turning on the power. If recurrences are expected, ensure to clear (reset) the failure history and record the new diagnostic reults.



5.1.6 DETAILS

Self check is performed for the following items:

5.1.6.1 PAGE 1 OF SCREEN

Detection item	Display	Detection content	Diagnosis signal (line)	Detection timing
X-ray protection	X-RAY	Not used.	---	---
B1 over-current protection	OCP	Not used.	---	---
Low bias line short protection	LOB	Not used.	---	---
Timer (clock)	TIM	The power frequency is changed as follows: 50Hz → 60Hz / 60Hz→50Hz. IC201 [MAIN PWB]	AC_IN	Detection starts 3 seconds after the power is turned on. Periodically check the power frequency by counting the AC pulse and monitor whether or not the frequency is changed.
Photo ditect	PHOTO	Not used.	---	---
DTVM and TVM communication	Hostlink	Communication error between the digital TV microcomputer and the TV microcomputer is detected. IC201 [MAIN PWB]	SDA	Check communication errors by counting the number of reset exception handling.
Fan lock	FAN	Not used.	---	---

5.1.6.2 PAGE 2 OF SCREEN

Detection item	Display	Detection content	Diagnosis signal (line)	Detection timing
US audio multiplexing decoder	MTS	Confirmation of reply of ACK signal which uses I2C communication.	SDA	If it checks whenever I2C communication is performed and no reply of ACK signal an error will be counted.
Tone/volume control	TONE	Same as above.	SDA	Same as above.
AV select switch	AVSW	Same as above.	SDA	Same as above.
Component signal select switch	CompSW	Not used.	---	---
A-D converter for component signal	ADC	Confirmation of reply of ACK signal which uses I2C communication.	SDA	If it checks whenever I2C communication is performed and no reply of ACK signal an error will be counted.
Tuner	TUNER	Same as above.	SDA	Same as above.
A-D converter for audio	Audio ADC	Not used.	---	---
Digital input	HDMI	Not used.	---	---
RGB/Def process	RGB/DEF	Confirmation of reply of ACK signal which uses I2C communication. IC201 [MAIN PWB]	SDA	If it checks whenever I2C communication is performed and no reply of ACK signal an error will be counted.
Memory	A-EEPROM	Confirmation of reply of ACK signal which uses I2C communication. IC702 [MAIN PWB]	SDA	Same as above.

JVC
Victor Company of Japan, Limited
CRT Display Category 12, 3-chome, Moriya-cho, Kanagawa-ku, Yokohama-city, Kanagawa-prefecture, 221-8528, Japan

(No.YA387)

Printed in Japan
VPT